

city on the 14th of January. We understand that the expedition was thoroughly successful in every respect, securing the collection of large numbers of fossils, as also numerous skeletons of recent animals, together with valuable antiquities, &c. The expense of the exploration amounted to nearly 15,000 dols., exclusive of the value of the services rendered by the Government. This was defrayed entirely by the gentlemen composing the party; and it is understood that the material results are to be placed in the Museum of Yale College, which will thereby be rendered the richest in America in this department of natural history.—According to Dr. Petermann, the peak of Itatiaiossu, the highest mountain in Brazil, was ascended during the past summer and its altitude determined by Mr. Glaziou, the Director of the Imperial Parks in Rio de Janeiro. It proved to have an elevation of 8,899 English feet, being somewhat less than had been previously estimated. Many species of plants were found on the mountain, and what is of great interest, a large number of Alpine species, especially of *Compositae*, were collected at from three to seven hundred metres below the summit.—The report of progress for 1870 of the Geological Survey of Ohio, under the direction of Prof. J. S. Newberry, has just been published at Columbus, forming a volume of nearly 600 pages, with a number of accompanying maps and sections. The volume contains, besides a report of progress of 1870, a sketch of the structure of the lower coal measures in North-Western Ohio, by Prof. Newberry; the report of labours in the second geological district, by Prof. E. B. Andrews, and on the geology of Highland County, by Prof. Orton; the report of the Agricultural Survey of the State, by Mr. J. H. Klippart; a report of the chemical department, by Prof. Wormley; sketches of the geology of several counties, by Messrs. M. C. Read and E. Gilbert; a sketch of the present state of the iron manufacture in Great Britain, by W. W. Porter; and a sketch of the present state of the steel industry, by Henry Newton. All these subjects are treated with great care, and the whole volume bears ample testimony to the ability of the chief geologist and the industry of his assistants. This volume is intended as simply preliminary to the final report, which Prof. Newberry hopes to have embodied in four volumes—two of them devoted to geology and palæontology, one to economical geology, and one to agriculture, botany, and zoology. The materials for these volumes are in advanced stage of forwardness, and will embrace monographic treatises on the several subjects, which will be of the utmost benefit in ascertaining and developing the resources of the State.—A society was organised in New York some time since under the name of the "Palestine Exploration Society," with the Rev. Dr. J. P. Thompson, chairman, Dr. Howard Crosby, secretary, and James Stokes, jun., treasurer, with a list of members including the principal archaeologists of the Eastern States. Its first report was published some time ago, embracing an account of the American explorers in Palestine, and the proceedings of the English Palestine Exploration Society, notices of the late explorations in Jerusalem, the Moabitic stone, &c., and concluding with an appeal to all persons interested for contributions of funds to aid in carrying out the proposed researches of the society. The field of investigation proposed includes the territory east of the Dead Sea and the Jordan Valley, as also Hermon, Lebanon, and the valleys and plains of Northern Syria. A simultaneous prosecution of researches in this field by two such bodies as the American and English societies will probably be productive of very important results, especially if supported with proper official documents from the Turkish Governments. As so much of what is now on record in regard to the geography and condition of Palestine is due to Americans, it is much to be hoped that the work may be continued by them toward a successful completion.

SCIENTIFIC SERIALS

Annalen der Chemie und Pharmacie viii. Supplement band, 3 Heft. Hesse has contributed a lengthy paper on the alkaloids of opium. It is the most exhaustive essay on the rarer alkaloids that has yet been published. He has examined minutely the following:—Pseudomorphin, laudamine, codamine, narcotine, papaverine, nitropapaverine, cryptopine, nitrocryptopine, protopine, laudanose, and hydrocotarine, and numerous salts of each of the above. The author groups the alkaloids into four classes, the morphine, thebaine, papaverine, and narcotine groups, and gives the distinctive characters with which the members of these groups dissolve in pure concentrated sulphuric acid. Marignac

follows with a long communication "On the specific heat, density, and expansion of certain solutions." Bousingault has made some experiments on the freezing of water. He took an exceedingly strong steel cylinder, placed in it a small steel bullet, and filled it entirely with water at 4° C, the cylinder was then closed by means of a cap, so that it was absolutely tight; the cylinder was exposed to a temperature of -24° for some time, but the water inside was not frozen, as was proved by the mobility of the bullet in the interior. Immediately on opening the cylinder and relieving the pressure, the water became a mass of ice.

THE *Geological Magazine* for February (No. 92) opens with some excellent notes on fossil plants by Mr. Carruthers, illustrated with a plate and several woodcuts. The subjects here referred to are the *Palæopteris hibernica*, the presence of sporangia belonging to the *Hymenophyllæ* in coal, *Osmundites Dowkeri*, the genus *Antholites*, a revision of the British forms belonging to which is given, the coniferous wood of Craighleith quarry and *Pothocites grantoni*.—Mr. S. R. Pattison communicates a note on the pyrites deposits in the province of Huelva, in Spain, and Mr. James Geikie the conclusion of his memoir on changes of climate during the glacial epoch. The latter contains a comparison of the glacial deposits of Scotland, Switzerland, Scandinavia, and North America. The other articles in the number are an abstract of the contents of Heer's "Flora Fossilis Arctica," by Mr. R. H. Scott, and an early notice (50 years old) of the occurrence and use of meteoric iron in Greenland.

SOCIETIES AND ACADEMIES

LONDON

Anthropological Institute, March 18.—Dr. Charnock, vice-president, in the chair. M. Letourneur and Dr. Haast were elected corresponding members. Mr. Geo. Harris read a paper on "The comparative Longevity of Animals of different species, and of Man; and the probable causes which mainly conduce to produce that difference." He cited several remarkable instances of longevity both in animals and man, and alluded to the opinions on the subject, both of ancient and modern writers. The influence of climate, air, and food were discussed, and also of domestication and civilisation. The theory of disease in connection more especially with concurrent decay and renovation was inquired into, and some speculations were made as to the effect future scientific discovery, as regards the medical properties both of plants and animals, might have on the question at issue.—Sir Duncan Gibb, Bart., M.D., read a paper on "The Physical Condition of Centenarians." His remarks were founded upon an examination of six genuine examples, in whom he found the organs of circulation and respiration in a condition more approaching to the prime of life than old age. There was an absence of all those changes usually observed in persons reaching 70, and in nearly all the special senses were unimpaired, the intelligence perfect; thus showing, at any rate, the complete integrity of the nervous system. The author's views were opposed to those held regarding the extreme longevity of centenarians.—Dr. Leith Adams exhibited and described a series of stone implements from the island of F'ferm; and Col. Fox contributed a note on some stone implements and pottery from St. Brienne, Normandy.

Entomological Society, March 4.—Prof. J. O. Westwood, president, in the chair.—Prof. Westwood exhibited living specimens of the *Acarus* described by him at the last meeting as *Argas reflexus*, from Canterbury Cathedral, and also another species of the genus found by Dr. Livingstone in Central Africa, which enters the feet of the natives between the toes, causing pain and inflammation.—Mr. S. Stevens exhibited an apparently new species of *Phycita* from near Gravesend, remarkable for its pearly colour and *Crambus*-like form.—Mr. F. Smith read an extract from a further communication from Mr. J. T. Moggridge respecting the storing of grain by ants at Mentone. Mr. Moggridge had confined a colony of the ants in a glass vessel so as to observe their habits, and he was now able to state positively that they fed upon the grain. A detailed account of the observations will be furnished by Mr. Moggridge upon his return to England.—Mr. Müller exhibited galls formed by *Acar*, of the genus *Phytoptus*, upon the leaves of *Cinnamomum nitidum*, from Bombay, being the first observation of the occurrence of these creatures in India.—Mr. H. W. Bates exhibited a series of species of *Cara-*

bus from Britain and Eastern Siberia, and remarked upon their affinities. The exhibition represented five British species and five corresponding Siberian forms, which differed totally specifically, though they might be considered representative species. One species only, *C. granulatus*, was common to the two extremities of the vast district comprising Dr. Sclater's Palearctic Region, though there are at least fifty known European forms, and fifty others from Siberia. One other species was common to Siberia and Western North America. Mr. Bates was inclined to doubt the advisability of separating the Palearctic and Nearctic Regions, and further he considered the partition of the globe, from a zoological point of view, into great divisions, was, to a considerable extent, based upon arbitrary evidence. He looked rather to the later geological changes, and the present configuration of land and sea, for dates upon which to ground theories of geographical distribution.—Mr. Baly communicated a paper "On new species of exotic *Cassida*."—Mr. Kirby communicated notes upon the butterflies described by Jablonsky and Herbst in their "Natusystem aller bekannten Insekten."—Mr. Dunning read an exhaustive memoir on the genus *Acentropus*, and after a review of the writings of the various authors who had treated upon this singular genus, he arrived at the conclusion, now almost universally maintained, that the genus is truly Lepidopterous, and further, that the evidence adduced failed to convince him of the existence of more than one species, for which he retained the name *Acentropus niveus*.

Photographic Society, March 12.—Mr. John Spiller, vice-president, in the chair. Mr. Valentine Blanchard read a paper on "Retouching: its use and abuse." While utterly condemning the frequent and elaborate retouching of negatives, such as one sees every day, Mr. Blanchard pointed out that there were occasionally some instances—for example, the correcting of false lights—where retouching was not only allowable, but really desirable, in order to render the picture more true to nature. The camera was at times at fault in reproducing objects in their true character; and under these circumstances the retouching brush or pencil might be fairly used.

CAMBRIDGE

Philosophical Society, February 12.—"Further Observations on the state of an Eye affected with a peculiar malformation," by the Astronomer Royal. In this paper the author showed by the discussion of numerical results obtained during a period of several years that the astigmatism had changed.—"The Comparison of Measures à traits with Measures à bouts," by Professor Miller. A method of comparing these measures without sinking cavities in the bars, was described, and the various processes that had been used were commented upon.

February 26.—"On Teichopsia, a form of transient half-blindness; its relation to nervous or sick headache, with an explanation of the phenomena," by Dr. Latham. The author considered the cause of the affection to be contraction of the vessels of the brain (probably the middle cerebral artery), and so a diminished supply of blood, produced by excited action of the sympathetic; and that the subsequent exhaustion of the sympathetic caused dilation of the vessels and consequent headache.—"A Machine for Tracing and otherwise exhibiting curves in connection with the theory of Vibration of Strings," by Mr. S. C. W. Ellis.

PARIS

Academy of Sciences, March 4.—M. de Saint-Venant read a continuation of his memoir on the hydrodynamics of streams.—M. Guibal presented a memoir on a ventilator applied to the aeration of mines.—M. H. Sainte-Claire Deville presented a note by M. D. Gernez on the absorption-spectra of chlorine and chloride of iodine.—M. W. de Fonvielle communicated an explanation of three cases of fulguration in which the lightning-conductors proved to be insufficient.—M. Sainte-Claire Deville presented a note by M. E. H. von Baumhauer on the origin of auroras, in which the author called attention to an explanation of these phenomena given by him in a work "De ortu lapidum meteoricorum," published at Utrecht in 1844. The author ascribes the production of auroras to the penetration into our atmosphere of clouds of uncondensed cosmical matter, the presence of iron and nickel in which, he seems to think, may account for their being attracted towards the magnetic poles of the earth.—A note by M. H. Caron on crystallised or "burnt" iron was read, in which the author treated of the brittle condition produced in a bar of iron when heated to whiteness and allowed to cool in the air. He finds that this effect is not due to an absorption of oxygen as has been supposed. He also states that good iron is not rendered crystalline by exposure to intense cold.—M. Wurtz pre-

sented a note by M. G. Bouchardat upon the acetic æthers of dulcite, in which the author describes the following compounds:—diacetic dulcite, diacetic dulcitane, hexacetic dulcite, tetracetic dulcitane, pentacetomonoehlorhydric dulcite, and pentacetic dulcite.—M. Wurtz also presented a note by M. Reboul on the hydrobromates and hydrochlorates of allylene, and a note on pyruvate, by M. Schlagdenhauffen. The latter is a glyceride of pyruvic acid obtained by heating glycerine with tartaric acid.—M. Fremy communicated a note by M. E. Landrin, on the reciprocal action of acids and alkaline bases when separated by a porous partition.—M. L. Kessler forwarded a note on a modification of the processes for the determination of nitrogen in a free state in the analysis of organic substances.—M. Decaisne presented a note by M. J. E. Planchon, on *Cratægus aronia* (Spach) and its relations with *C. oxyacantha* and *C. azarolus* of Linné. The author regards *C. aronia* as a cross of the other two forms, which are probably distinct races of the same species.—M. E. Robert accounts for the renewed fermentation of wines at the period of the flowering of the vine, by the abundance of germs of *Mycoderma vini* in the atmosphere at that period.

BOOKS RECEIVED

ENGLISH.—The Year Book of Facts, 1872: J. Timbs (Lockwood and Co.).—An Elementary Treatise on Curve Tracing: P. Frost (Macmillan and Co.).—Monograph of the British Graptolitidæ: H. A. Nicholson (Edinburgh, Blackwood and Sons).

DIARY

THURSDAY, MARCH 21.

ROYAL SOCIETY, at 8.30.—New Researches on the Phosphorus Bases: Dr. Hofmann, F.R.S.—On some Heterogenic Modes of Origin of Flagellated Monads, Fungus-Germs, and Ciliated Infusoria: Dr. Bastian, F.R.S. SOCIETY OF ANTIQUARIES, at 8.30.—Ballot for the Election of Fellows. LONDON INSTITUTION, at 7.—How Plants are Fertilised: A. W. Bennett. ROYAL INSTITUTION, at 3.—On the Chemistry of Alkalies and Alkali Manufacture: Prof. Odling, F.R.S. LINNEAN SOCIETY, at 8.—On the Geographical Distribution of Compositæ: G. Bentham. CHEMICAL SOCIETY, at 8.

FRIDAY, MARCH 22.

ROYAL COLLEGE OF SURGEONS, at 4.—On the Digestive Organs of the Vertebrata: Prof. Flower, F.R.S. ROYAL INSTITUTION, at 9.—On the Results of the last Eclipse Expedition: J. Norman Lockyer, F.R.S. QUEKETT MICROSCOPICAL CLUB, at 8.

SATURDAY, MARCH 23.

ROYAL INSTITUTION, at 3.—Demonology: M. D. Conway.

MONDAY, MARCH 25.

ROYAL COLLEGE OF SURGEONS, at 4.—On the Digestive Organs of the Vertebrata: Prof. Flower, F.R.S. ROYAL GEOGRAPHICAL SOCIETY, at 8.30.

WEDNESDAY, MARCH 27.

ROYAL COLLEGE OF SURGEONS, at 4.—On the Digestive Organs of the Vertebrata: Prof. Flower, F.R.S. ROYAL SOCIETY OF LITERATURE, at 8.30.—On some Greek and other inscriptions recently procured in the Haurân: W. S. W. Vaux.

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ERRATA.—Page 379, 2nd col., lines 16, 17, should read thus:—

Present River flow water 75
 flood water 8.81 2,400
 Line 13 from bottom, for "4.6 per cent." read 4.6 degrees.